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Infantile Intussusception

A STUDY OF ONE HUNDRED AND THREE CASES TREATED EITHER BY INTESTINAL DISTENTION OR LAPAROTOMY

AND

A REPORT OF TWO CASES

BY

FREDERICK HOLME WIGGIN, M.D.

GYNECOLOGIST TO THE NEW YORK CITY HOSPITAL, BLACKWELL'S ISLAND

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INFANTILE INTUSSUSCEPTION

A STUDY OF ONE HUNDRED AND THREE CASES TREATED EITHER BY INTESTINAL DISTENTION OR LAPAROTOMY;

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A REPORT OF TWO CASES.[1]

By FREDERICK HOLME WIGGIN, M.D.,
GYNECOLOGIST TO THE NEW YORK CITY HOSPITAL, BLACKWELL'S ISLAND.

It is a strange commentary on the advancement made by our science that at the close of this nineteenth century we are met to consider and decide, if we may, upon the comparative merits of the two methods of treatment for intussusception suggested many centuries ago, that of intestinal distention by air or water, by Hippocrates, and that of abdominal section, by Praxagoras. For while since their day much therapeutical ingenuity in the treatment of this disorder has been displayed, our greater pathological knowledge has pushed these remedies aside, and at present we have only left for consideration a choice between enemata and laparotomy for the relief of this condition.

Some time since a case of infantile intussusception came under the writer's observation, and the questions which were raised led him to more fully investigate this subject. It was found that, while much attention had been given in England to this form of intestinal obstruction, and many cases had been recorded in the medical journals, it had received but scant attention here, and that there were comparatively few reported cases to be found in American medical liter-

[1] Read at the meeting of the New York Academy of Medicine, January 2, 1896.

ature. The conclusion was reached that either this form of intestinal disorder is of much more frequent occurrence abroad, or that it often fails of recognition here, or that if diagnosticated and treated it is not deemed of sufficient importance to be recorded. When it is realized that intussusception occurring in young infants is practically a hopeless condition when left to nature's care (ninety-eight per cent. of all cases terminating fatally when the immediate or remote effects of sloughing are considered), the importance of the answers to the questions, What is the scientific, and therefore proper, procedure for the relief of these little sufferers? and What is the prospect of the infant's recovery if this treatment is resorted to? manifests itself, and warrants a careful consideration of the results obtained by one or other of the methods previously alluded to, and a full statement of unrecorded individual experience in the discussion.

In so doing, it is evident that we must determine what foundation exists for the popular belief, both medical and lay, that the method of intestinal distention by air or water is one of safety and that, if unsuccessful, it in no degree interferes with the performance at a later period of laparotomy; or, on the other hand, that an abdominal section performed on an infant twelve months of age, or under, must almost of necessity result fatally, and is, therefore, only to be resorted to, if at all, after long delay and the failure of the so-called milder measure to afford permanent relief. Until these questions are finally answered to the satisfaction of the profession at large, it is of the utmost importance that all cases of intussusception, whether treated by one method or the other, and with whatever result, should be fully reported. In connection with this subject, the histories of the two following unreported cases, and the abstracts from the histories collected by the writer from the English and American medical literature since the beginning of the present century, will be of interest.

Cases of Infantile Intussusception Successfully Treated by Enemata or Inflation.—Table No. I. Case XIV.—On June 23, 1894, I was requested to prescribe for a female infant, aged four months. It was stated that she had vomited the previous day, that she was costive and very restless. As no further information was given at this time, the diagnosis of indigestion was made, and gray powder ordered. On

June 24th, a message was received to the effect that the child had had two movements from the bowels, consequently no haste was made to reach her. When she was seen, the conditions were found to be different from what had been supposed, and the previous history, which was now drawn out, was as follows: The infant had been well from birth. She was nursed, but was given in addition cow's milk, to which sugar and lime water were added. She had been more or less costive from birth. Four days prior to my first visit the mother and child had taken an outing. The infant was fretful, and was in consequence jumped up and down constantly. During the evening she became more restless, and vomited greenish fluid. On June 20th the infant was given castor oil, which was rejected, nothing being retained by her stomach throughout the day. An enema was administered and a movement of the bowels resulted. On June 21st the vomiting persisted, and more oil was given, also another enema, which treatment was followed by a small stool. During the night of June 23d, the restlessness and vomiting became more marked. On June 24th, a physician who was called noticed that the restlessness was caused by colicky pains, and that a stool containing fæcal matter and bloody mucus had been passed. The parents insisted that something should be done for the infant's immediate relief, and the physician administered an enema which contained glycerin. Bloody mucus followed, and a tumor, which soon receded, protruded from the anus. When the writer reached the patient, her bodily temperature was 102.4° F., and her pulse was 170. Palpation of the abdomen revealed a cylindrical tumor in the left inguinal and lumbar regions. It could also be felt on rectal examination. The case was diagnosticated to be one of intussusception, probably of the ileo-cæcal variety. The infant was inverted and an enema given consisting of a quart of warm saline solution. The elevation of the reservoir was three feet. The enema was forcibly retained for some minutes, the abdomen meanwhile being palpated (not masséed) to prevent over-distention of the colon. When the liquid was allowed to escape, it was found that the tumor had partly disappeared. One hour later, a small fæcal movement occurred, gas escaped from the anus, and a second and larger stool was voided. Dr. J. Lewis Smith now saw the patient, and concurred in

the diagnosis and the previous treatment. As the tumor had partially yielded to the former treatment, it was decided to repeat it, the reservoir this time to be raised to four feet, and the abdomen kneaded during the administration of the enema. Under these procedures the tumor disappeared. Two hours later a small fæcal movement occurred, and five hours after the disappearance or reduction of the tumor the infant's pulse was 170, and the temperature had fallen to 101° F., its face had regained its natural expression and color, its cry was stronger, and two movements with free escape of gas had occurred. On June 25th, it was noted that the infant had slept during the night, that the tumor had not reappeared, that the temperature was normal, that the abdomen was flaccid, and that three soft, yellow, pasty stools had been passed. The further convalescence was uneventful.

Case XV.—The writer is indebted for the history of the following case of intussusception to Dr. Frank Overton, of Patchogue, L. I. The doctor reports that during August, 1895, E. H——, a female infant, aged six and one-half months, came under his observation. She had been well from birth. On the morning of the first day she was visited, she cried violently, and apparently had colicky pains, which were accompanied by a rise of bodily temperature. This condition yielded to treatment. A few weeks later, September 25, 1895, the infant was again seized with severe abdominal pains, cried persistently, and refused to nurse. The mother gave the infant castor oil and paregoric and this treatment was followed by a natural dejection from the bowels. In the evening the child began to vomit and presented a peculiar apathetic appearance, crying continually. Her bodily temperature was 99.5° F. and her pulse was 120. There was no abdominal distention, and gray powder was ordered. Early on the morning of September 26th, she voided two ounces of blood and later a smaller quantity. She now cried constantly and vomited frequently; her temperature was 102° F., her pulse was 140, and intussusception was suspected. At 7 A.M. her temperature was 103° F. and her pulse had risen to 180. At 9 A.M. a consultation was held. Abdominal palpation revealed the fact that there was no distention of the bowels, but that there was a localized point of tenderness in the right side just below the umbilicus, and there a small tumor was finally felt.

A reservoir was filled with warm saline solution and raised five feet above the infant's body, which was partly inverted. All the water possible without causing over-distention of the colon was injected into the bowel and forcibly retained. Massage was also applied to the abdominal wall. The child became quiet, and after five minutes had elapsed the water was allowed to escape. The tumor could now only be felt with difficulty, and the previously described procedure was repeated. After the escape of the second enema a large fæcal movement was voided, containing bloody mucus. The tumor had now disappeared. The change in the patient's countenance was magical; the vomiting ceased, and she fell asleep. During the succeeding hours she nursed freely. On September 27th it was noted that the infant had slept all night, that her temperature was normal, and that a large fæcal movement which contained neither blood nor mucus was voided. Convalescence was uneventful.

Case I.—In the *British Medical Journal* for 1894, vol. i., p. 345, is recorded, from notes furnished Mr. Barker by the University College Hospital, a case of intussusception of the ileo-cæcal variety which occurred during 1879 in a male infant, aged six months. It was admitted to the hospital thirty-one hours after the beginning of the attack. Abdominal palpation revealed a tumor. Injections of air and water were made into the bowel, causing the disappearance of the tumor, which did not again appear.

Case II.—Dr. Andrew records, in the St. Bartholomew's Hospital Reports for 1892, a case of intussusception occurring in a male infant, aged four months, which came under observation on the second day of the disorder. An enema of eight ounces of water was administered. This procedure caused the apparent disappearance of the tumor, which reappeared the next day. Enemata were given hourly for nine hours, finally causing the tumor to disappear permanently.

Case III.—Sir William Savory records, in the St. Bartholomew's Hospital Reports for 1892, a case of intussusception occurring in a female infant, twelve months of age, which came under observation on the first day. An enema consisting of a pint of warm milk was administered within nine hours after the disorder manifested itself. This treatment was followed by the apparent disappearance of the tumor, which, however, reappeared the next day. The

enema was repeated with satisfactory results, and there was no recurrence of the trouble.

Case IV.—Mr. Beck records, in the *British Medical Journal* for 1894, vol. i., p. 346, a case of intussusception of the ileo-cæcal variety which occurred during 1885, in a male infant, aged five months. The case came under observation on the first day. Abdominal palpation revealed a tumor. Under chloroform narcosis an enema was administered, and while this was being done the tumor was manipulated between the finger and thumb. Reduction followed, and there was no further trouble.

Case V.—In the *British Medical Journal* for 1894, vol. i., p. 345, is recorded from notes furnished Mr. Barker by the University College Hospital, London, a case of intussusception of the ileo-cæcal variety, which occurred during 1888 in a male infant, aged seven months, which came under observation six hours after the disorder began. Injections of air and water were tried with successful results.

Case VI.—In the *British Medical Journal* for 1894, vol. i., p. 345, a case of intussusception of the ileo-cæcal variety is recorded from the notes of the University College Hospital, London, as having occurred in a male infant, aged nine months, during 1888, and which came under observation on the first day. Under chloroform narcosis the bowel was inflated with air, the abdomen being meanwhile manipulated. This treatment resulted in the gradual disappearance of the tumor and of all the symptoms of the disorder.

Case VII.—In the *British Medical Journal* for 1894, vol. i., p. 346, the following case of intussusception of the ileo-cæcal variety occurring in a male infant, aged six months, is credited to the University College Hospital. The infant came under observation within the first twelve hours of the disorder. Abdominal and rectal examination revealed a tumor. Manipulation followed by enemata of air and water were tried with partial success, but the tumor soon reappeared. Reduction was finally effected by an enema, the reservoir being elevated three feet above the patient's body.

Case VIII.—Mr. Gee records, in the *British Medical Journal* for 1894, vol. i., pp. 345 and 346, a case of intussusception which occurred during 1890, in a male infant, aged nine months. It came under observation on the second day. Abdominal and rectal ex-

amination revealed a tumor. Enemata were administered with successful results.

Case IX.—Dr. A. Jeffery Wood reports, in the *Australian Medical Journal*, 1894, vol. i., p. 287, a case of intussusception occurring in a male infant, aged six months, which came under observation on the second day. The infant, after being anæsthetized, was partly inverted and the bowel distended with air, deep massage being meanwhile employed. Under this treatment the tumor disappeared. One quart of warm water was injected into the bowel. This was followed one hour later by a stool. During the night the infant had seven dejections from the bowels, none of which contained blood. The disorder did not recur.

Case X.—University College Hospital reports, in the *British Medical Journal* for 1894, vol. i., p. 346, a case of intussusception of the ileo-cæcal variety, occurring during 1892, in a male infant, aged ten months. Abdominal examination revealed a tumor. The bowel protruded from the anal orifice. Inflation was tried with success, the tumor disappeared, and the infant recovered.

Case XI.—Dr. Beeston records, in the *Australasian Medical Gazette* for 1893, vol. ii., p. 373, a case of intussusception occurring in a male infant, aged seven months, which came under observation on the second day. Insufflations of air were tried, but proved unsuccessful. On the fourth day the patient had copious stools, and passed a piece of fleshy-looking matter having a putrid odor. There was no further trouble.

Case XII.—Mr. D. J. Caddy records, in the *British Medical Journal* for 1894, vol. i., p. 126, a case of ileo-cæcal intussusception occurring in a female infant, aged six months, which came under observation on the first day. Abdominal palpation revealed a tumor. The infant passed blood from the anus, and vomited soon after it was first seen. Water was forcibly injected into the rectum, causing the apparent disappearance of the tumor. Soon after, one ounce of blood escaped from the rectum. The next morning the infant was again seized with colicky pains, and cried violently. She passed more blood, and a further trial of enemata under increased pressure was made, with a successful result.

Case XIII.—Dr. Williams records, in the *Lancet* for 1894, vol. i., page 537, a case of intussusception occurring in a male infant, aged eight months, which

came under observation on the first day, giving a history of intestinal derangement for one week. Examination of the abdomen showed it to be much distended, and palpation revealed a tumor. Inversion combined with massage and an enema followed by insufflation of air were tried, all to no purpose. Two basins were procured, each containing eight ounces of warm water. In one a drachm and a half of citric acid was placed, and in the other two drachms of bicarbonate of soda. The acid solution was thrown into the bowel through a catheter, and was followed by the alkaline solution. The catheter was quickly withdrawn, and the nates held together for several minutes. The tumor could now no longer be felt, the vomiting ceased, and a natural dejection from the bowels occurred two days later.

Case XVI.—Dr. Ruff reports, in the *Medical News*, vol. xl., p. 299, a case of intussusception occurring in a male infant, aged seventeen days, which came under observation five hours after the first seizure. The infant was partly inverted, and an enema of water was given and forcibly retained for five minutes. This proving unsuccessful, inflation was tried, and then alternating injections of air and water at intervals for two hours. This treatment proving ineffectual, chloroform was administered, and abdominal massage practised without benefit. Morphine was given, then alternating injections of air and water at intervals for six hours. This treatment was followed two hours later by a stool, and four hours after this occurred the infant started suddenly, and the tumor could no longer be felt. There was no reappearance of the disorder.

Cases of Infantile Intussusception Unsuccessfully Treated by Enemata or Inflation.—Table No. 2. Cases I. to VIII.—Mr. Gorham, in Guy's Hospital Reports, vol. iii., p. 330, records eight cases of intussusception occurring in infants whose ages ranged from three to eleven months. They were all treated in the first place by purgatives, and, this treatment proving ineffectual, by enemata. The cases all terminated fatally.

Case X.—Dr. F. Taylor and Mr. Golding Bird report, in the Transactions of the Clinical Society of London, vol. xvi., p. 67, a case of intussusception of the ileo-cæcal variety occurring during 1881, in an infant, aged eight months, which came under observation on the first day. Abdominal and rectal examination re-

vealed a tumor, and there were blood and mucus on the diaper. The bowel was distended with air, and the tumor under this treatment apparently disappeared only to return some hours later. Chloroform was then administered, and inflation again tried with increased pressure, but without avail, as the infant soon died. The necropsy revealed the fact that the invaginated bowel remained unreduced. Forcible inflation with air was tried (without result), and then with water, which reduced the ileum but left the colon inverted. This proved also to be gangrenous. Under the injection of water the peritoneal and muscular coats of the bowel gave way at several points, leaving the mucous coat intact.

Case XI.—Mr. Andrews records, in the St. Bartholomew's Reports for 1892, a case of intussusception which occurred during 1881, in an infant, aged four months, which came under observation on the third day. Four enemata were administered. After the last one the tumor could not be felt. On the following day the infant died. The necropsy revealed the fact that the invaginated bowel remained unreduced. No evidence of peritonitis existed.

Case XII.—Mr. Barker records, in the *British Medical Journal* for 1894, vol. i., p. 345, a case of intussusception of the ileo-cæcal variety, occurring in a female infant, aged four months, which came under observation during the first twenty-eight hours. Inversion and enemata of air and water were tried, causing the apparent reduction of the tumor, but it reappeared nine hours later. The enemata were repeated with apparent success. Two hours later the tumor could again be made out, and it was again apparently reduced by enema. The infant collapsed and died. The necropsy revealed the fact that the invaginated bowel had never been completely reduced, and that it was gangrenous.

Case XIII.—Mr. Cripps records, in St. Bartholomew's Reports for 1892, pp. 97–111, a case of intussusception occurring during 1884, in a male infant, aged four months, who came under observation on the fourth day. Under chloroform narcosis, an enema consisting of one and a half pints of water was administered. While this was being accomplished, the infant vomited, inspired vomited material, and died. The necropsy revealed two lacerations of the bowel, probably caused by the enema.

Case XIV.—Mr. Baker records, in St. Bartholomew's Reports for 1892, p. 97, a case of intussusception occurring during 1884, in a male infant, aged seven months, which came under observation on the eighth day. Two enemata were administered, and the last apparently reduced the invagination, as the tumor could no longer be felt. Five hours later, however, the infant died. No necropsy was made.

Case XV.—Mr. Andrews records, in St. Bartholomew's Hospital Reports for 1892, a case of intussusception occurring during 1886, in a male infant, aged four months, which came under observation on the fourth day. Six enemata of oil and two of milk were administered. This treatment was followed by the infant's death. The necropsy revealed the fact that the invagination had been only partially reduced.

Case XVI.—Mr. Mortimer reports, in the *Lancet* for 1891, vol. i., pp. 1,145 and 1,146, a case of intussusception occurring in an infant, aged eight months, which came under observation on the fourth day. Under chloroform narcosis, abdominal palpation revealed a tumor. This procedure was followed by collapse. The infant was stimulated, and two enemata, each consisting of about two ounces of fluid, were administered. After the last one had escaped, the tumor could no longer be felt. Opiates were given, and for two days the only symptoms were occasional expressions of pain and increasing abdominal distention. At the end of this time, vomiting recommenced, and the tumor reappeared. Chloroform was administered a second time, and ten ounces of water were injected into the bowel, the reservoir being raised three feet. Following this three enemata were administered, and the tumor partially disappeared. The next day a pint of water was injected at a lower pressure than previously, and it was repeated on the succeeding day. A few hours later the infant expired. The necropsy revealed three points of rupture in the descending colon.

Case XVII.—J. Aitken Clark, in the Edinburgh Hospital Reports, 1894, page 239, records a case of intussusception occurring on November 22, 1892, in a male infant, aged five months, which came under observation on the second day. Opium and enemata were administered frequently without result. It died on the sixth day of the disease. The necropsy revealed the fact that a double intussusception remained unre-

duced, one at the splenic flexure, and the other at the sigmoid flexure of the colon.

Case XVIII.—Dr. Edward Deanesley records, in the *Lancet* for 1894, vol. i., p. 601, a case of intussusception of the ileo-cæcal variety occurring in a female infant, aged seven months, which came under observation on the fifth day after the bowel protruded from the anal orifice. A history of a month's previous illness was given. Two days prior to the infant's admission to the hospital, the mother returned the bowel inside the anus, and gave the infant castor oil. This treatment aggravated the symptoms, the bowel again appeared outside of the anus, and a small stool containing blood was passed. The bowel was returned with ease inside the anus, and on pushing it up the ordinary abdominal tumor was recognized. An anæsthetic was administered, and was followed by an enema of one pint of water having a head of two feet, the abdomen being meanwhile masséed. After the fluid escaped the tumor could no longer be felt. The bowels moved twice. The next day, as the infant was drowsy, the opiate was discontinued. Toward evening the infant vomited, and during the succeeding twenty-four hours the bowel once more protruded. Under chloroform narcosis it was reduced by enema, but it reappeared the following day, when reduction was again apparently effected by enema. Twenty-four hours later death occurred. Necropsy revealed the fact that the invagination remained unreduced, and that its reduction could easily have been effected by laparotomy.

Case XIX.—Mr. Winter reports, in the *Lancet*, vol. i., p. 600, a case of intussusception of the ileo-cæcal variety occurring in a female infant, aged seven months, which came under observation on the second day of the disorder. At this time a tumor protruded from the anus. Under chloroform narcosis one pint of water was injected into the bowel, the receptacle containing it being raised two feet, and the abdomen meanwhile being masséed. Under this treatment the tumor disappeared. The next day a normal stool occurred. Two days later the bowel again protruded. Chloroform was again employed, a second enema was administered, and reduction of the tumor was apparently effected. The following day the bowel again protruded. Under chloroform narcosis an enema was given with apparently satisfactory results, but on the

succeeding day the infant died. At the necropsy it was found that the bowel protruded from the anus, as it had done prior to death. The intussusception was found to lie in the exact centre of the abdominal cavity. It lay alongside the spine, was closely attached to it by the meso-colon, and it passed straight downward from about the third lumbar vertebra to the pelvic outlet. The protruding mass was returned inside the rectum, and an attempt made to reduce it from above by pulling the entering part of the ileum, but it was impossible to do so. The reduction was ultimately effected with ease by encircling the bowel below the apex of the intussusception with the thumb and finger, and holding the bowel a few inches lower down. The apex was then pushed up with the fingers. No adhesions had formed between the opposed peritoneal surfaces of the entering and returning layers.

Case XX.—J. Aitken Clark reports, in the Edinburgh Hospital Reports for 1894, p. 239, a case of intussusception of the ileo-cæcal variety, occurring during January, 1894, in a male infant, aged nine months, which came under observation on the third day. The infant was inverted and enemata administered at short intervals, but without result, death occurring on the evening of the third day. The necropsy revealed the fact that the invaginated bowel remained unreduced.

Cases IX., XXI., XXII.—Mr. Hutchinson cites (*Lancet*, 1891, vol. i., p. 1,146) three cases of intussusception within his own experience, where infants were treated by enemata of air and water, which treatment was followed by death. The necropsies revealed the fact that the invaginations in all cases remained unreduced.

Case XXIII.—In the *Lancet* for 1891, vol. i., p. 1,144, Mr. J. D. Mortimer records a case of intussusception occurring in an infant, aged three months, which came under observation on the first day of the disease. The infant had vomited and passed blood from the anus. Rectal examination revealed a tumor. The bowel was inflated with air, and the tumor disappeared. Opiates were given. Some hours later the vomiting recommenced, and the abdomen became distended. Collapse followed, and the infant died. The necropsy revealed the fact that the invagination had not been reduced. A tube was tied into the rec-

tum and connected with a reservoir containing water, and elevated two feet above the cadaver. The water was allowed to pass into the intestinal canal. In a few minutes the invagination was almost reduced, but about one inch of the ileum, the cæcum, and part of the vermiform appendix remained tightly ensheathed in the colon. After fifteen minutes of sustained pressure, the reservoir was raised from three to four feet, and a slight further reduction of the invaginated portion of bowel took place. This went no further, and in four minutes the colon ruptured in three places, just below the intussusceptum. The invagination, however, was readily reduced by manipulation from below without obvious damage. There was a little lymph on the peritoneal surfaces of the cæcum, and its mucous membrane was infiltrated and slightly shreddy. The valve was much swollen, and by its obstruction would probably have caused rupture at the moment of complete reduction had this been effected by the enema.

Post-Mortem Experiments.—Mr. Mole describes, in the *Bristol Medico-Chirurgical Journal*, 1894, p. 65, some experiments made on infantile cadavers. He found that when one and one-half pints of water had been injected into the bowel under a pressure of one and one-half pounds to the square inch (three feet) the liquid passed through the ileo-cæcal valve; also, that air could be made to pass the same point. His conclusions were: (1) That no harm can be done healthy intestine by enemata of fluids under a moderate pressure; (2) that hydrostatic pressure is more uniform, and therefore less likely to cause rupture of the bowel; (3) that the part most likely to be injured by over-distention is the transverse colon.

Cases of Infantile Intussusception Unsuccessfully Treated by Laparotomy.—Table No. 3. Case I.—Ashhurst, in the course of an article entitled "The History of Laparotomy for Intussusception," *American Journal of the Medical Sciences*, vol. lxviii., p. 54, states that the first laparotomy performed on an infant for the relief of an intussusception was by Gerson, and reported by Hackman, of Hamburg. The operation was performed on September 18, 1828. The subject was a male infant, aged twelve weeks. An oblique incision was made in the direction of Poupart's ligament on the left side. While effort was being made to reduce the invagination the bowel gave way

at a gangrenous point, the operation was abandoned, and the infant expired.

Case II.—In the *American Journal of the Medical Sciences*, vol. lxviii., p. 54, Sir Spencer Wells reports a case of intussusception occurring in an infant, aged four months, which came under observation on the third day of the disease. The operation was performed on the following day, when the infant was in collapse. It died five hours later.

Case III.—Mr. Barker credits Busch, in the *Lancet*, 1888, vol. ii., p. 262, with a case of intussusception occurring during 1869 in a male infant, aged seven months, which came under observation on the fourth day of the acute illness. Laparotomy was performed; the invaginated gut proved to be irreducible, therefore an artificial anus was made. Death occurred eight days later.

Case IV.—Ashhurst credits Professor Weinlechner, of Vienna, in the *American Journal of the Medical Sciences*, vol. lxviii., p. 54, with a case of intussusception of the ileo-cæcal variety, which occurred during 1871 in a female infant, aged six months. Laparotomy was performed on the fourth day, and was followed by death a few hours later.

Case V.—In the *Lancet*, 1888, vol. ii., p. 262, a case of intussusception of the ileo-cæcal variety occurring during 1873 in an infant, aged five months, is credited by Barker to Duncan. A history of several days' previous illness was given, but the day upon which the infant came under observation is not noted. Laparotomy was performed, but proved unsuccessful, death ensuing on the following day.

Case VI.—Mr. Jonathan Hutchinson records, in the *Lancet* for 1875, vol. ii., p. 877, a case of intussusception of the ileo-cæcal variety occurring in an infant, aged six months, which came under observation on the third day. Enemata had previously been administered without result. The patient was failing, therefore laparotomy was performed at once. The invaginated portion of bowel was reduced with difficulty. The case terminated fatally six hours later.

Case VII.—Mr. Barker credits Howse, in the *Lancet* for 1888, vol. ii., p. 262, with a case of intussusception of the ileo-cæcal variety occurring during 1876 in an infant, aged five months, which came under observation after a month's indisposition. Laparotomy was performed. Death ensued a few hours later.

Cases VIII., XIII.—In the *Lancet* for 1888, vol. ii., p. 262, Stage is credited with two cases of intussusception, one occurring during 1876 and the other in 1880. The first was a female infant, aged six months, which came under observation on the second day. Laparotomy was performed, and death ensued a few hours later. The second was a male infant, aged three months, which came under observation on the first day. Laparotomy was performed, and was followed by death two and one-half days later.

Case IX.—Mr. Smith records, in the St. Bartholomew's Hospital Reports for 1892, vol. xxviii., p. 106, a case of intussusception of the ileo-cæcal variety occurring during 1877 in a male infant, aged eight months, which came under observation on the fourth day, giving a history of two days' previous illness, the chief symptoms of which were abdominal pain, vomiting, and the passage of blood from the anal orifice. No tumor could be felt on making either abdominal or rectal examination. Inflation on the second day had afforded slight relief. It was tried again on the third day, and followed on the fourth day by enemata, which seemed to give some relief. Laparotomy was, however, performed on the fifth day. There were no evidences present of peritonitis, although the ileum, which had slipped through the ileo-cæcal valve, was gangrenous. This portion of gut was excised, and an anastomosis effected. Death followed five hours later.

Case X.—Mr. Beck is credited, in the *British Medical Journal* for 1894, vol. i., p. 346, with a case of intussusception of the ileo-cæcal variety occurring during 1877 in a female infant, aged eight months, which came under observation five and one-half hours after the beginning of the attack. Repeated enemata of oil and air were administered without result, and twenty-six hours from the beginning of the disorder laparotomy was performed. The invaginated bowel, while deeply congested, was easily reduced. The operation, however, was unsuccessful, being followed by death from septic peritonitis.

Case XI.—The *Lancet* for 1888, vol. ii., p. 262, credits Sands with a case of intussusception of the ileo-cæcal variety occurring during 1878 in a male infant, aged six and one-half months, which came under observation on the second day. Laparotomy was performed, and was followed by death four hours later.

Case XII.—The *Lancet* for 1888, vol. ii., p. 262, credits Corley with a case of intussusception of the colic variety, occurring during 1879 in an infant, aged nine months, which came under observation after several days' illness. Laparotomy was performed, and was followed by death four hours later.

Case XIV.—Mr. R. J. Godlee reports, in the Transactions of the Clinical Society of London, vol. xvi., p. 67, a case of intussusception of the ileo-cæcal variety occurring in 1882 in an infant, aged fourteen weeks. Laparotomy was performed, and the invagination was reduced with difficulty. The infant died, and the necropsy revealed the fact that the reduction at the time of operation was only partial.

Case XV.—Mr. Walsham is credited, in the St. Bartholomew's Hospital Reports for 1892, pp. 97–111, with a case of intussusception occurring during 1882 in a male infant, aged seven months, which came under observation on the third day. Distention of the bowel with air and water was tried. This treatment proving unsuccessful, laparotomy was performed, notwithstanding the fact that peritonitis existed. The invaginated bowel was reduced with difficulty. The operation was followed by death.

Case XVI.—Marsh records, in the St. Bartholomew's Reports for 1892, a case of intussusception occurring during 1882 in a female infant, aged eight months, which came under observation on the second day. Inflation with air was employed, but without success. Laparotomy was then performed, and the invaginated bowel was easily reduced. Death ensued on the following day.

Case XVII.—In the *Lancet* for 1888, vol. ii., p. 262, Braun is credited with a case of intussusception of the ileo-colic variety, occurring during 1882 in a male infant, aged three months, which came under observation on the fifth day. Laparotomy was performed, and as the invagination could not be reduced, it was excised, and an artificial anus made. Death ensued one hour later.

Case XVIII.—Drs. Kudlich and Jacobi record, in the Medical Record, vol. xxi., p. 299, a case of intussusception occurring during 1882 in a female, aged two months, which came under observation eighteen hours after the onset. Enemata and massage were first unsuccessfully employed, and were followed by laparotomy. Great difficulty was experienced in re-

ONE HUNDRED AND THREE CASES OF INFANTILE INTUSSUSCEPTION TREATED EITHER BY INTESTINAL DISTENTION OR LAPAROTOMY.

TABLE I.

Cases of Infantile Intussusception Successfully Treated by Enemata or Inflation.

No.	Operator.	Date.	Sex.	Age. Months.	Day of Operation. Hours.	Variety.	Previous Treatment.	Remarks.
1	Univ. C. H., Lon.....	1879	M.	6	31	Ileo-cæcal		
2	Andrew	1880	M.	4	48			
3	Savory.....	1884	F.	12	24			
4	Beck	1885	M.	5	8	Ileo-cæcal		
5	Univ. C. H., Lon.....	1888	M.	7	6	"		
6	Univ. C. H., Lon.....	1888	M.	9	21	"		
7	Univ. C. H., Lon.....	1889	M.	6	12	"		
8	Gee	1890	M.	9	48			
9	Wood.....	1892	M.	6	48			
10	Univ. C. H., Lon.....	1892	M.	10	12			
11	Beeston.....	1893	M.	7	48			
12	Caddy	1893	F.	6	24			
13	Williams.....	1894	M.	8	24			
14	Wiggin & Smith	1894	F.	4	48	Ileo-cæcal	.....	Not previously recorded.
15	Overton.....	1895	F.	7½	48	.....	.....	" " "
16	Ruff.....	....	M.	17 days	5			

TABLE II.

Cases of Infantile Intussusception Unsuccessfully Treated by Enemata or Inflation.

No.	Operator.	Date.	Sex.	Age. Months.	Day of Operation. Hours.	Variety.	Previous Treatment.	Remarks.
1	Blizard	1808	M.	5	120	.....	Cathartics	No record of necropsy.
2	Clark	1837	..	11-3wks.	....	Ileo-cæcal	"	" "
3	Gorham	1838	..	4	19	"	"	" "
4	Muriel	1838	..	3½	72	.....	"	" "
5	Monro	1838	..	4	68	.....	"	" "
6	Cunningham	1838	..	9	40	.....	"	" "
7	Ash	1838	..	9	60	.....	"	" "
8	Langstaff	1838	..	3	120	.....	"	" "
9	Hutchinson	1861	..	10				
10	Taylor & Golding Bird	1881	..	8	24	Ileo-cæcal	.....	Unreduced.
11	Andrews	1881	..	4	72	.....	.....	"
12	Barker	1884	F.	4	28	Ileo-cæcal	.....	"
13	Cripps	1884	M.	4	96	.....	.....	Perforation.
14	Baker	1884	M.	7	192			
15	Andrews	1886	M.	4	96	.....	.....	Unred. ruptures.
16	Mortimer	1891	..	8	24	.....	.....	Unreduced.
17	Clark	1892	M.	5	48	.....	.....	"
18	Deanesley	1893	F.	7	120	Ileo-cæcal	.....	"
19	Winter	1893	F.	7	48	Ileo-colic	.....	"
20	Clark	1894	M.	9	72	Ileo-cæcal	.....	"
21	Hutchinson	....	..	..	....	.....	.....	"
22	Hutchinson	....	..	..	....	.....	.....	"
23	Mortimer	....	..	3	24	Ileo-cæcal	.....	"

TABLE III.

Cases of Infantile Intussusception Unsuccessfully Treated by Laparotomy.

No.	Operator.	Date.	Sex.	Age. Months.	Day of Operation. Hours.	Variety.	Previous Treatment.	Remarks.
1	Gerson	1828	M.	12 wks.	Some days	Ileo-cæcal	.....	Operation incomplete.
2	Wells	1863	M.	4	96 hrs.	"	.....	Collapsed at operation.
3	Busch	1869	M.	7	96	.....	.....	Artificial anus.
4	Weinlechner	1871	F.	6	96	Ileo-cæcal		
5	Duncan	1873	..	5	Some days	"		
6	Hutchinson	1875	..	6	72	"	Enemata	Reduction difficult.
7	Howse	1876	..	5	1 month	"	.....	Artificial anus.
8	Stage	1876	F.	6	36	"	.....	" "
9	Smith	1877	M.	8	120	"	Enemata	Resection.
10	Beck	1877	F.	8	26½	"	"	
11	Sands	1878	M.	6½	48	"		
12	Corley	1879	..	9	Some days	Ileo-colic		
13	Stage	1880	M.	3	24			
14	Godlee	1882	..	14 wks.				
15	Walsham	1882	M.	7	72	.....	Enemata	Reduction difficult.
16	Marsh	1882	F.	8	48	.....	.....	Reduction easy.
17	Braun	1882	M.	3	120	Ileo-colic	.....	Artificial anus.
18	Jacobi	1882	F.	2	18	.....	Enemata	Reduction difficult.
19	Beck	1882	..	under 12	48	Ileo-cæcal		

TABLE III.—*Continued.*

Cases of Infantile Intussusception Unsuccessfully Treated by Laparotomy.

No.	Operator.	Date.	Sex.	Age. Months.	Day of Operation. Hours.	Variety.	Previous Treatment.	Remarks.
20	Godlee	1883	..	7	72	Ileo-cæcal	Enemata	Reduction difficult.
21	Symonds	1884	M.	5	20 days	"	"	Exhaustion.
22	Symonds	1884	F.	6	20 "	"		
23	Beck	1885	M.	5	59 hrs.	"	Enemata	Irreducible.
24	Owen	1885	F.	3 days	72	"	"	Artificial anus.
25	Horsely	1885	M.	4	96	"		" "
26	Horsely	1885	M.	5	19	"		
27	Jacobson	1886	M.	5	3 wks.			Resection.
28	Jacobson	1887	..	11	1 mo.	Ileo-cæcal		Operation incomplete.
29	Van Arsdale	1887	..	5	....			Artificial anus.
30	Van Arsdale	1887	..	5	....			Operation incomplete.
31	Van Arsdale	1887	..	5	....			Artificial anus.
32	Pick	1887	..	6	96 hrs.	Enteric	Cathartics, enemata	Invag. not found.
33	Walsham	1888	..	8	24			
34	Marsh	1889	M.	4	96	Ileo-cæcal		Reduction difficult.
35	Cripps	1890	M.	5	72	"	Enemata	Operation incomplete.
36	Walsham	1890	M.	9	72			Perforation.
37	Barker	1891	M.	4	72			Resection.
38	Sheppard	1892	..	7	48	Ileo-cæcal		Reduction difficult.
39	Bush	1893	..	4	72	Enteric	Enemata	Artificial anus.
40	Abbe	1893	..	2½	17		"	Reduction difficult.
41	Barker	1894	M.	5	72		"	Reduction easy.
42	Briddon	1894	..	8	48		"	Reduction difficult.
43	Erdman	1895	M.	8½	96	Enteric	"	Resection.

TABLE IV.

Cases of Infantile Intussusception Successfully Treated by Laparotomy.

No.	Operator.	Date.	Sex.	Age. Months.	Day of Operation. Hours.	Variety.	Previous Treatment.	Remarks.
1	Marsh	1875	M.	6	24	Ileo-cæcal	Enemata	Reduction easy.
2	Sands	1877	F.	6	12	"	Ene. air and water	Reduction difficult.
3	Godlee	1881	..	9	96	"	Massage and inflation	Reduction easy.
4	Snowball	1886	M.	8	24	"	Opium and belladon. inflat.	" "
5	Howit	1888	M.	3	48	"	Cathartics and enemata	" "
6	Univ. C. H., Lon	1889	F.	5	48	"	Enemata	
7	Kammerer	1889	..	6	60	"	Chloroform and enema	
8	Savory & Marsh	1890	M.	9	48	.....	.....	Reduction easy.
9	Bush	1890	..	4	48	Ileo-cæcal	Enemata	" "
10	McEwen	1891	..	9	....	"	.....	Reduction difficult.
11	Pollard	1892	..	6	24	"	Enemata	
12	Barker	1893	F.	7	36	Enteric	Enemata and manip	Gut strang. but easily red.
13	Verrall	1893	M.	6	24	Ileo-cæcal	Enemata	Reduction difficult.
14	Beatley & Ridley	1893	..	11	24	"	"	
15	Lockwood	1893	M.	8	28	"	"	
16	Barker	1894	M.	4	48	.....	.....	Intestinal coats injured.
17	Ainsley	1894	M.	8	6	Ileo-cæcal	Chloro., invers., inflat	Reduction difficult.
18	Pollard	1894	F.	7	24	"	.....	" "
19	Barker	1894	M.	5	22	"	Enemata	
20	Roberts	1894	..	9	96	"	"	Reduction easy.
21	Howit	1894	M.	6	48	"	Cathar., enem., inflat	Reduction difficult.

TABLE V.

Cases of Infantile Intussusception Treated by Laparotomy Since 1889 Other than Those in which the Bowel was Incised, Excised, or Perforated.

No.	Operator.	Date.	Sex.	Age. Months.	Day of Operation. Hours.	Variety.	Previous Treatment.	Result.	Remarks.
1	Savory & Marsh.....	1890	M.	9	48	.....	.....	R.	Reduction easy.
2	Bush.....	1890	..	4	48	Ileo-cæcal	Enemata...	R.	" "
3	McEwen.....	1891	..	9	....	"	.....	R.	Reduction difficult.
4	Pollard.....	1892	..	6	24	"	Enemata	R.	
5	Sheppard	1892	..	7	48	"	.....	D.	Reduction difficult.
6	Abbe	1893	..	2½	17	"	Enemata.....	D.	" "
7	Barker.....	1893	F.	7	36	Enteric	Enem., manipulation .	R.	Reduction easy.
8	Verrall.....	1893	M.	6	24	Ileo-cæcal	Enemata.....	R.	Reduction difficult.
9	Beatley & Ridley	1893	..	11	24	"	"	R.	
10	Lockwood.....	1893	M.	8	28	"	"	R.	
11	Barker	1894	M.	4	48	.....	.....	R.	Intes. coats injured.
12	Ainsley.....	1894	M.	8	6	Ileo-cæcal	Chloro., invers., infla.	R.	Reduction difficult.
13	Pollard	1894	F.	7	24	"	.....	R.	
14	Barker	1894	M.	5	22	"	Enemata	R.	Reduction easy.
15	Roberts.....	1894	..	9	96	"	"	R.	" "
16	Howit.....	1894	M.	6	48	"	Cathartics, enem., inf.	R.	Reduction difficult.
17	Barker.....	1894	M.	5	72	.....	Enemata.....	D.	Reduction easy.
18	Briddon.....	1894	..	8	48	.....	.....	D.	Reduction difficult.

The percentage of mortality of laparotomy performed since 1890 for infantile intussusception is 22.2%.

ducing the invaginated bowel, and the operation was followed by death.

Case XX.—Mr. R. J. Godlee reports, in the Transactions of the Clinical Society, vol. xvi., p. 67, a case of intussusception occurring during 1883 in an infant, aged seven months, which came under observation on the third day. Abdominal palpation revealed a tumor in the right umbilical region. Enemata of air and water were first tried without success. Laparotomy was performed under chloroform narcosis. The invagination, which proved to be of the ileo-cæcal variety, was reduced with some difficulty. The operation was followed by death, due to septic peritonitis.

Case XXI.—In the *Lancet* for 1888, vol. ii., p. 262, Symonds is credited with two cases of infantile intussusception. The cases occurred during 1884. The first was of the ileo-cæcal variety, and occurred in a male infant, aged five months. It came under observation on the seventh day of acute illness, following thirteen days of indisposition. Laparotomy was performed, and was followed by death.

Case XXII.—The second case occurred in a female infant, aged six months, and came under observation on the twentieth day of subacute illness. Laparotomy was performed, and was also followed by death.

Case XXIII.—Mr. Beck records, in the *British Medical Journal* for 1894, vol. i., p. 346, a case of intussusception of the ileo-cæcal variety occurring during 1885, in a male infant, aged five months, which came under observation fifty-five hours after the onset. Abdominal palpation revealed a tumor. Injections of air and water were tried, but proving unsuccessful, laparotomy was performed. The invagination proved irreducible, and the operation was abandoned. Death soon occurred.

Case XXIV.—Mr. Edmund Owen reports, in the *British Medical Journal* for 1885, vol. i., p. 1,201, a case of intussusception occurring in a female infant on the day of its birth, which came under observation on the second day. Prior to this, castor oil had been given. Digital exploration of the rectum proved the bowel to be pervious. Under chloroform narcosis an enema was administered, but without result. On the following day (third) the enema was repeated, but without affording relief. Laparotomy was performed, and the first piece of small intestine which presented

in the wound was seized, and an artificial anus made. No attempt was made to find the invaginated portion of intestine. The infant survived the enterectomy six days, dying on the ninth day after its birth.

Case XXV.—In the *British Medical Journal* for 1894, vol. i., p. 346, Horseley is credited with two cases of infantile intussusception, occurring during 1885. The first was that of a male infant, aged four months, was of the ileo-cæcal variety, and came under observation on the fourth day. Laparotomy was performed, and the intussusception proving irreducible, it was excised, and an artificial anus was made. Death soon followed the operation.

Case XXVI.—The second also occurred in a male infant, and was of the ileo-cæcal variety. It came under observation nineteen hours after the onset. Laparotomy was performed. Death followed thirty hours later.

Case XXVII.—In the *Lancet* for 1887, vol. i., p. 1,179, are recorded two cases, credited to Jacobson, of intussusception. The first occurred in 1886, in a male infant, aged five months, which came under observation with a history of three weeks' previous illness. Laparotomy was performed, and the invaginated portion of bowel was found to be partly gangrenous and irreducible. The infant's condition at this time was fairly good, but after the excision of the invaginated gut it became very bad, and the patient soon expired.

Case XXVIII.—The second case occurred in an infant, aged eleven months, which came under observation with a history of a month's previous illness. Laparotomy was performed, and the invaginated portion of bowel was found to be irreducible. The operation was concluded without resection of the tumor, in the hope that spontaneous cure would result by sloughing. Death ensued twenty-four hours later.

Case XXIX.—Dr. Van Arsdale, in the *Annals of Surgery*, vol. xx., pp. 418 and 419, records the fact that he had resorted to laparotomy three times in the treatment of infantile intussusception. The operation was followed by death in all of the cases. Since this report the doctor has kindly furnished the writer with additional details of these cases. They occurred about 1887, in infants under six months of age. In one case peritonitis existed at the time of operation, and the bowels were much distended. The trouble was not satisfactorily located, and the operation was incomplete.

Case XXX.—In another of the cases the intussusception was irreducible, and an artificial anus was made.

Case XXXI.—The same treatment was adopted in the third case.

Case XXXII.—Mr. Pick records, in the *Lancet* for 1891, vol. i., p. 1,313, a case of intussusception of the enteric variety occurring during 1887, in an infant, aged six months, which came under observation with a history of three weeks' previous indisposition, and the last two days of which had been acute. Abdominal examination revealed a tumor in the left inguinal and lumbar regions. The infant was given chloroform, inverted, and the bowel inflated with air. Under this pressure the fingers which had been placed on the abdomen over the tumor felt it suddenly melt away. Opiates were administered, but about nine hours later the infant did not appear as well and an enema of oil was administered. On the following morning the abdomen was tender and somewhat distended. A few hours later, Mr. Pick found the infant collapsed, and performed laparotomy. No invagination was found, but a piece of small intestine, six inches in length, which was collapsed and showed signs of having been constricted at either end, it looking paralyzed. The bowel immediately below this portion of gut was also empty and collapsed. The operation was well borne, but soon after the infant suddenly collapsed, and shortly thereafter died. Mr. Pick's explanation of this condition was that the first portion of gut found collapsed had been involved in the intussusception, that it had been reduced by the air pressure, but that the gut had been so long constricted that it could not recover itself after its release; therefore the symptoms continued unchanged after the reduction.

Case XXXIII.—In the St. Bartholomew's Hospital Reports for 1892, Mr. Walsham is credited with a case of intussusception occurring during 1888, in an infant, aged eight months, which came under observation on the first day. Laparotomy was performed, and at the point of beginning of the invagination a small sessile tumor was found. Death followed the operation, twenty-four hours later.

Case XXXIV.—Mr. Marsh records, in the St. Bartholomew's Hospital Reports for 1892, p. 111, a case of intussusception of the ileo-cæcal variety, occurring during 1889, in a male infant, aged four months, which

came under observation on the fourth day. A previous history of abdominal pain, vomiting, and passage of watery stools, which contained blood, was given. Abdominal and rectal examination revealed a tumor. Laparotomy was performed, and difficulty was experienced in reducing the invaginated bowel. Death ensued a few hours later from exhaustion.

Case XXXV.—Mr. Cripps records, in the St. Bartholomew's Hospital Reports for 1892, vol. xxviii., p. 111, a case of intussusception of the ileo-cæcal variety, occurring during 1890, in a male infant, aged five months, which came under observation on the third day. A previous history of several days' illness was given, the chief symptoms of which were abdominal pain, vomiting, and the passage of blood-stained mucus from the bowel. Enemata of warm water failed twice to reduce the invagination. Abdominal and rectal examination revealed a tumor. Laparotomy was performed, and the gut was apparently reduced, but death occurred two hours later. The necropsy revealed the fact that the intussusception had been only partially reduced. There was no evidence of peritonitis.

Case XXXVI.—Mr. Walsham is credited, in the St. Bartholomew's Hospital Reports for 1892, p. 111, with a case of intussusception occurring during 1890, in a male infant, nine months of age, which came under observation on the third day. Laparotomy was performed. The invaginated bowel was easily reduced. Death followed the operation. The necropsy revealed the fact that there was a small perforation in the transverse colon, and that death was due to septic peritonitis.

Case XXXVII.—Mr. A. E. Barker records, in the *Lancet* for 1892, vol. i., p. 80, a case of intussusception occurring in an infant, aged four months, during 1891, which came under observation on the fourth day. An unsuccessful attempt to reduce the intussusception by inflation had been made. On examination the infant was found to be collapsed. It emitted a gangrenous odor. Under chloroform narcosis, rectal and abdominal palpation revealed a tumor. Laparotomy was performed. The gut was found to be gangrenous and was excised, and the divided ends joined. Death ensued ten hours later. The necropsy proved the sutures of the bowel to be firm, and they resisted strong pressure of water without leaking.

Case XXXVIII.—Mr. F. J. Sheppard records, in the

Lancet for 1892, vol. ii., page 1,155, a case of intussusception of the ileo-cæcal variety, occurring in an infant, aged seven months, which came under observation on the second day. Examination at this time revealed a dark-colored protrusion from the anus. Laparotomy was performed under chloroform narcosis. On account of the intestinal distention the invaginated gut was found with difficulty and reduced only after the intestine had been incised. The operation was followed by the infant's death, three hours later.

Case XXXIX.—Mr. Paul Bush reports, in the *Bristol Medico-Chirurgical Journal*, 1894, p. 6, a case of intussusception occurring in an infant, aged four months, which came under observation on the third day of the disease. Enemata were administered without success. Laparotomy was performed. The intussusception proved to be of the enteric variety and irreducible. The tumor was excised and an artificial anus made. Peritonitis ensued, and the infant died twenty-four hours later.

Case XL.—Dr. Abbé reported, in the *Annals of Surgery*, vol. xx., p. 419, a case of intussusception occurring during 1893, which came under observation sixteen hours after the onset. Laparotomy was performed. The invaginated bowel was reduced with much difficulty on account of the strong adhesions which had already formed. Death followed the operation twenty-four hours later.

Case XLI.—Mr. A. E. Barker records, in the *British Medical Journal* for 1894, vol. ii., p. 1,237, a case of intussusception occurring in a male infant, aged four months, which came under observation on the third day. Abdominal and rectal palpation revealed a tumor, and blood and mucus were passed from the anal orifice. Under chloroform narcosis warm water was injected into the bowel from a reservoir raised three feet above the patient's body. When five ounces had entered, the fluid began to escape, and the tumor could no longer be felt. An opiate was given, and the infant slept well all night. At 6 o'clock on the following morning it began to scream, and soon thereafter passed blood and mucus from the anus. Under chloroform narcosis, laparotomy was performed, the operation occupying only eight minutes. This was succeeded by collapse, and the infant died twenty-four hours later. Necropsy was negative.

Case XLII.—Dr. Briddon, at the meeting of the

New York Surgical Society, held on the evening of May 23, 1894, *Annals of Surgery*, vol. xx., pp. 418 and 419, reported a case of intussusception occurring in an infant, aged eight months, which came under observation on the second day, in a state of collapse. Laparotomy was performed. The invagination was reduced with difficulty. Death ensued five hours later.

Case LXIII.—Dr. J. F. Erdmann records, in the Medical Record, 1895, vol. i., page 475, a case of intussusception of the enteric variety occurring during January, 1895, in a male infant, aged eight and one-half months, which came under observation on the fourth day. Enemata had previously been unsuccessfully employed. Laparotomy was performed, and the invaginated portion of the ileum, which proved to be in a gangrenous condition, was removed (six inches), and an end-to-end anastomosis effected by means of a Murphy button. Septic peritonitis existed at the time of operation, and the infant died a few hours later.

Cases of Infantile Intussusception Successfully Treated by Laparotomy.—Table No. 4. Case I.—Mr. Marsh reported to the Royal Medical and Chirurgical Society, at its meeting held December 14, 1875 (*Lancet*, 1875, vol. ii., p. 877), a case of intussusception occurring in a male infant, aged six months, which came under observation on the first day of acute illness, giving a history of thirteen days of previous indisposition. Examination revealed an abdominal tumor, and there existed a protrusion from the anal orifice. Enemata of air and water were employed without success. A few hours later, Mr. Marsh found the infant collapsed. Laparotomy was performed, and the invaginated bowel was readily reduced. Convalescence was uneventful.

Case II.—Dr. Henry B. Sands records, in the *New York Medical Journal* of 1877, vol. xxv., p. 561, a case of intussusception of the ileo-cæcal variety occurring in a female infant, aged six months, which came under observation twelve hours after the onset. The infant was collapsed. Abdominal and rectal palpation revealed a tumor. Reduction of the invaginated bowel was first attempted by the fingers, by enemata, by the long rectal tube, by inflation, and again by enemata, and finally, as the tumor persisted in reappearing, abdominal section was resorted to. The invaginated portion of bowel was reduced with difficulty. The bowels

moved two days later, and convalescence was uneventful.

Case III.—Mr. R. J. Godlee reports, in the Transactions of the Clinical Society of London, vol. xvi., p. 67, a case of intussusception of the ileo-cæcal variety, occurring during 1881, in an infant, aged nine months, which came under observation on the fourth day at which time the bowel protruded from the anal orifice. The pulse-rate was 200. Inflation with air and water was first tried, after the infant had been inverted, but proved unsuccessful. Laparotomy was performed, the invaginated portion of bowel was readily reduced, and recovery ensued.

Case IV.—Dr. Snowball records, in the *Lancet* for November 3, 1886, a case of intussusception of the ileo-cæcal variety, occurring in an infant, aged eight months, which came under observation on the first day. Opiates and enemata having been tried unsuccessfully laparotomy was performed, and the invaginated bowel was reduced without difficulty, but the constriction was too tight to have admitted of its reduction by enema. Convalescence was uneventful.

Case V.—Dr. Howitt, in a paper read before the American Association of Obstetricians and Gynecologists, 1894, records a case of intussusception of the ileo-cæcal variety occurring during 1888, in a male infant, aged three months, which came under observation on the second day of acute illness. Abdominal palpation revealed a tumor. Cathartics had been given, aggravating all the symptoms. Under chloroform narcosis, and with the pelvis elevated, an enema was administered. When a little more than a pint had been injected, the infant suddenly ceased breathing, and was resuscitated with difficulty. As the tumor had only been partially reduced by the enema, laparotomy was performed. The tumor was reduced with some difficulty. The cæcum and ascending colon gave evidence of having recently been involved in the invagination. Two hours later the bowels moved, and the convalescence was uneventful.

Case VI.—The University College Hospital records, in the *British Medical Journal* for 1894, vol. i., p. 347, a case of intussusception of the ileo-cæcal variety occurring during 1889, in a female infant, aged five months, which came under observation on the second day. Abdominal palpation under chloroform narcosis revealed a tumor. Enemata were tried unsuccessfully.

Laparotomy was performed, and the invagination was easily reduced. Convalescence was uneventful.

Case VII.—Dr. Frederick Kammerer records, in the Medical Record for 1890, vol. i., p. 113, a case of intussusception of the ileo-cæcal variety occurring during 1889, in an infant, aged six months, which came under observation sixty hours after the onset. The infant was narcotized with chloroform, inverted, and an enema administered under strong pressure, but without result. Laparotomy was performed, and the invaginated portion of bowel was easily reduced. Recovery resulted.

Case VIII.—Sir William Savory and Mr. Marsh record, in the St. Bartholomew's Hospital Reports, 1892, vol. xxvi., p. 110, a case of intussusception occurring during 1890, in an infant, aged nine months, which came under observation on the second day. Abdominal palpation revealed a tumor. Laparotomy was performed, and the invaginated portion of gut was easily reduced. During the night following the operation, a stool was passed, which did not contain blood. Convalescence was uneventful.

Case IX.—Mr. Paul Bush, in the *Bristol Medico-Chirurgical Journal*, 1894, p. 6, records a case of intussusception occurring in an infant, aged four months, which came under observation on the second day (May 21, 1890). Enemata had been administered without result. Under chloroform narcosis laparotomy was performed. The invagination was of the ileo-cæcal variety, and was easily reduced. The patient's recovery was uneventful.

Case X.—MacEwen records, in the *Glasgow Medical Journal* for 1892, p. 276, a case of intussusception of the colic variety occurring during 1891, in an infant, aged nine months. When first seen it was collapsed. Laparotomy was performed, the invagination was with difficulty reduced, and in making the reduction the peritoneal coat of the gut was injured. Recovery ensued, and three months later the infant was shown in good health.

Case XI.—Mr. Pollard records, in the *Lancet* for 1892, vol. ii., p. 880, a case of ileo-cæcal intussusception occurring in an infant, aged six months, which came under observation on the first day. Abdominal palpation revealed a tumor. Enemata repeated at intervals were given (with a head varying from two to three feet) unsuccessfully, as the tumor kept reappear-

ing after short intervals. Laparotomy was performed, and the tumor was withdrawn. It seemed to consist only of the swollen ileo-cæcal valve, the intussusception having possibly been reduced by the enemata. Convalescence was uneventful.

Case XII.—Mr. Barker records, in the *British Medical Journal* for 1894, vol. i., p. 345, a case of intussusception of the enteric variety, occurring during 1893, in a female infant, aged seven months, which came under observation thirty-six hours after the onset. Abdominal palpation revealed a tumor. Enemata combined with manipulation having failed to effect reduction, laparotomy was performed, and the invaginated bowel, although strangulated, was easily reduced by pressure from below. Recovery followed the operation.

Case XIII.—Mr. Verrall records, in the *British Medical Journal*, 1893, vol. ii., p. 1,375, a case of intussusception of the ileo-cæcal variety occurring during 1894, in a male infant, aged six months, which came under observation on the first day of the acute attack. Abdominal palpation revealed a tumor. Under anæsthesia an enema of eight ounces of water was administered, the elevation of the reservoir being two feet. This procedure had no effect on the tumor. Laparotomy was performed, and the invagination was reduced with difficulty. The bowels moved naturally the succeeding day, and the infant recovered.

Case XIV.—Dr. Beatley and Mr. Ridley record, in the *British Medical Journal* of 1894, vol. i., p. 911, a case of intussusception of the ileo-cæcal variety occurring during 1893, in an infant, aged eleven months. When it first came under observation, it was stated that the infant's bowels had been deranged for eleven days. Abdominal palpation revealed a tumor. Under chloroform narcosis enemata had been given at frequent intervals, but without result, and many hours of valuable time were thus lost. Laparotomy was performed. The tumor was reached with difficulty owing to the intestinal distention, but was easily reduced. Before the intestines could be returned within the abdominal cavity they had to be incised to allow the gas to escape. The bowels moved on the second day after the operation. The convalescence was retarded by the occurrence of a persistent diarrhœa.

Case XV.—Mr. Lockwood records, in the *Lancet* for June 3, 1893, a case of intussusception occurring in a

male infant, aged eight months, which came under observation twenty-eight hours after the onset. Enemata were unsuccessfully tried under chloroform narcosis. The first consisted of ten ounces of water with a head of two and one-half feet, and the second of twelve ounces with a head of three feet. Laparotomy was performed. The time required for the administration of the enemata and the performance of the laparotomy was thirty-five minutes.

Case XVI.—Mr. A. E. J. Barker reports, in the *British Medical Journal* of 1894, vol. ii., p. 1,237, a case of intussusception occurring in a male infant, aged four months, which came under observation during 1894, on the second day. Abdominal palpation revealed a tumor. The infant's general condition being bad, enemata were omitted. Laparotomy was performed and the invaginated bowel pressed out of the intussuscipiens. This manipulation injured the peritoneal coat in several places. The cæcum was darkly congested, swollen, and devoid of polish. The operation was followed by little shock, and the bowels moved several times during the night, each movement containing less blood. Convalescence was uneventful.

Case XVII.—Dr. Ainsley records, in the *Lancet* for 1894, vol. ii., p. 1,247, a case of ileo-cæcal intussusception occurring in a male infant, aged eight months, which came under observation on the first day. When seen, the infant was collapsed. Abdominal and rectal palpation revealed a tumor. Inflation was unsuccessfully tried under chloroform narcosis. Six and one-half hours after the onset laparotomy was performed, and the invagination reduced. The time required for the operation was forty minutes.

Commenting on this case, Dr. Ainsley said: "The difficulty in unravelling the bowel, as well as its congested and œdematous condition, makes us believe that had the operation been postponed even for a few hours the chances of success would have been very seriously jeopardized. I am also persuaded that prolonged inflation or injection of water could have done nothing but harm."

Case XVIII.—Mr. Pollard records, in the *Lancet* for 1894, vol. i., p. 473, a case of intussusception of the ileo-cæcal variety occurring in a female infant, aged seven months, which came under observation on the first day. Rectal and abdominal palpation revealed a tumor. The dejections had a gangrenous

odor. Laparotomy was at once performed. The invaginated bowel was reduced with some difficulty, the infant's bowels acted naturally twenty hours later, and convalescence was uneventful.

Case XIX.—Mr. A. E. J. Barker records, in the *British Medical Journal* for 1894, vol. i., p. 345, a case of intussusception occurring in a male infant, aged five months, which came under observation during 1894. Enemata were administered with apparent success, as the tumor disappeared, but it soon returned. Laparotomy was performed, and the invagination was reduced. Recovery followed the operation.

Case XX.—Dr. Roberts records, in the *Philadelphia Medical and Surgical Reporter* of 1894, p. 428, a case of intussusception of the ileo-cæcal variety, occurring in an infant, aged nine months, which came under observation on the fourth day. Enemata were first tried. Then laparotomy was performed, and the invagination was easily reduced. The time occupied by the operation was twenty-five minutes. The infant's convalescence was uneventful.

Case XXI.—Dr. Howitt, in a paper read before the American Association of Obstetricians and Gynecologists, 1894, records a case of intussusception of the ileo-cæcal variety occurring in a male infant, aged six months, which came under observation on the second day. Cathartics and enemata had previously been unsuccessfully employed, as was Senn's plan of rectal insufflation with hydrogen gas. The infant's condition was bad. Laparotomy was performed, and the invaginated gut was difficult of reduction. The infant's bowels moved the same evening, and its convalescence was uneventful.

Remarks.—The total number of cases of infantile intussusception collected and reported in this paper is 103. Of these nearly 50 per cent. occurred during the fourth, fifth, and six months, in nearly equal proportions; 75.4 per cent. of the cases occurred in males, and 89 per cent. were of the ileo-cæcal variety. Pritchard in his paper on intussusception called attention to the probable part played by external violence in the causation of this disorder during early life, particularly the careless manner in which infants are picked up and doubled over the arm of those caring for them, thereby injuring and causing a temporary paralysis of some portion of the intestinal canal. Jacobi has also called attention to this matter, particu-

larly to the way in which infants are violently jumped up and down to quiet their cry. This seems to have been the prime factor in the causation of the invagination in the writer's case. The age during which the infant is most liable to be affected by this disorder seems to substantiate these views. In one case the invagination was caused by an intestinal tumor.

In these cases there seems to be nothing of unusual interest in the symptomatology to record. The disorder manifesting itself by means of a sudden onset of severe abdominal pain, followed by vomiting and the passage of stools containing blood and mucus. Tenesmus was present to a marked degree only in those cases where the gut portruded from the anal orifice, or where the tumor was down in the rectum. The symptoms varied in intensity in the usual manner, in direct pro portion to the degree of constriction the bowel was subjected to, as indicated by the character of the pain and the amount of blood passed from the anus. The sign of the disorder, an abdominal tumor, was seldom absent, as was to be expected in such a large proportion of cases of the ileo-cæcal variety. Several of the reporters call attention to the necessity in all suspected cases of this trouble of making a conjoined abdominal and rectal examination, for in some instances a tumor was revealed by this means after abdominal or rectal palpation alone had failed to discover it.

A protruding anal tumor occurred in the usual proportion—about six per cent. of the cases.

Cure by sloughing, which is exceedingly rare in these cases, was met with twice, in Beeston's case and in one recorded by Mr. Cripps in the St. Bartholomew's Hospital Reports for 1892, of which a few particulars will here be given, it not being included in the collection.

The case occurred during 1882, in a female, aged three months, which came under observation on the fourteenth day, with a gangrenous mass of gut protruding from the anus, a portion of which was removed. The rest sloughed off, and the patient recovered.

Thirty-nine of the cases were treated only by means of inflation, or enemata, or both. Of these, sixteen, or forty-one per cent., recovered. The average hour after the onset when the treatment began was the forty-first. The histories of these cases are so deficient as to the details of the quantity of fluid or the amount of pressure employed that no deductions can be drawn in re-

gard to these points from this group. In two cases, eight ounces of water were used; in two cases, one pint; in two cases, one quart with a head of from three to four feet; and in one case, three quarts under a head of five feet was reported as having been the amount injected into the intestinal canal of an infant seven and one-half months of age. In one case, nine enemata were required to bring about a permanent reduction of the invagination, as evidenced by the disappearance of the tumor and the subsidence of the symptoms. Chloroform narcosis was employed in three cases while the distention of the bowel was being effected.

The cases of this group which terminated fatally were twenty-three in number, a mortality of fifty-nine per cent. The average age of the infants was about five months. The average hour following the onset when treatment was begun was the sixty-ninth. In one case while the enema was being administered under chloroform narcosis, and in the inverted position, the infant vomited, inspired the vomited material, and died. In several cases, collapse followed the administration of the enema, and in nearly all cases there is the same story of the inefficiency and uncertainty of the method, the tumor disappearing only to return after a short interval, and the treatment repeated again and again, the occasional repeated administration of chloroform with alternating injections of air or water combined with massage, often roughly applied, till finally death mercifully came to the infant's relief. In all of these cases where notes of a necropsy were found, the same tale was told of gangrenous, unreduced, invaginated bowel; invaginated bowel easily reduced by internal manipulation or traction; or bowel lacerated as a result of the violence caused by the over-distention of the diseased intestine. In one instance, the gut was found to have become gangrenous twenty-eight hours after the first onset.

If all the cases are counted in which intestinal distention was practised to reduce the invaginated bowel, some of which cases were afterwards treated by abdominal section, we will find that their number is 72. Of this number, failure to effect reduction occurred, in 54 instances, or 75 per cent., which percentage would have represented the mortality of this method of treatment had not other means been afterward tried, taking them out of this category These figures approximate

closely to those given by Hare as the percentage of mortality following this method of treatment. In one instance where laparotomy was performed after enemata had apparently failed to effect a reduction, as evidenced by a continuance of the symptoms, it was thought that the swollen ileo-cæcal valve had, after the reduction of the invaginated bowel, simulated the tumor; and in another case it was supposed that the invagination had been reduced by the distention but that the bowel had become paralyzed and had been unable to recover itself.

While the experiments of Forrest, Curtiss, and others prove that there is little or no danger of injuring healthy infantile intestine by a hydrostatic pressure of six pounds to the square inch, the experiments of Mortimer and Mole and the practical experience set forth in this paper demonstrate conclusively that the conditions are very much altered when we have to do with a portion of gut that has been severely constricted, even for a few hours. Battey and Mole have proved by their experiments that water under a moderate pressure can, when no obstructions exist, be made to pass through the ileo-cæcal valve, and Mole has proved that one and one-half pints of water injected under a pressure of one and one-third pounds to the square inch, into an infantile colon, will fully distend it, and that it will pass the valve. Therefore, it would appear that if it is desired to treat a case of infantile intussusception by means of intestinal distention (which the writer freely admits, after a careful study of this subject, notwithstanding the fact that the only case which has come under his personal observation was successfully treated by enemata, he would be unwilling to employ) at least one and one-half pints of tepid saline solution (one teaspoonful of salt to the quart) should be placed in a reservoir which is not to be elevated above three feet; and if this is not successful after one trial the method should be abandoned, and other means to effect a reduction employed. If it is thought that reduction has occurred under this method, as evidenced by the apparent disappearance of the tumor, the infant should be placed in its crib and quieted by other means than by opiates or motion, to the end that if reduction has not really been effected the fact may be made manifest by the symptoms at the earliest possible moment, so that other treatment may be attempted while the chances of a successful out-

come, though diminished, are not absolutely gone. It is well to recall the fact that in those cases which were successfully treated by enemata the average hour after the onset at which treatment was begun was the forty-first, and in those cases which terminated fatally it was the sixty-ninth.

Mr. Mortimer, in the course of a paper entitled, "On the Treatment of Intussusception by Injection or Inflation, and its Dangers," *Lancet*, 1891, vol. i., p. 1,144, said: "That in his opinion the chief advantage of this method of treatment lay in the slight parental opposition to its employment." In alluding to the objections of this method, he said: "A serious objection to the operation (enema) is that the conditions under which it is performed can only be roughly guessed at. An invagination of a fairly healthy intestine may at one time remain unreduced, when a little more pressure would have completely unfolded it, while at another time a very slight force may be enough to cause rupture. There is always afterwards a deceptive lull of some hours, due to effects of shock, to the anæsthetic, cessation of feeding, as well as to the opium which is usually given. Such delay may so alter the general and local conditions as to render hopeless any further procedure. It is also true that an experienced operator may blindly do as much damage as the merest tyro. I need not dwell on the obvious value of being able to feel and see what one has to deal with, both as regards the intussusception and the various complications which may accompany it. There is seldom hesitation in performing an operation, perhaps a serious one, in the most unfavorable cases, say of ruptured aneurism or obstructed labor, or in ascribing a fatal ending less to the operation than to the condition which necessitated it. To this class acute intussusception in the late stage belongs."

In the course of the discussion which followed the report of Mr. Mortimer's case of intussusception unsuccessfully treated by enemata, Mr. Bryant said: "In my opinion under all circumstances the treatment by intestinal distention is dangerous, although successful cases may be occasionally recorded, and it is only justifiable within the first three days, and in cases not presenting symptoms of acute strangulation." The speaker also considered manipulations through the abdominal wall during the administration of enemata as being dangerous.

Mr. Pritchard, in the course of his paper entitled "Intussusception," *Bristol Medico-Chirurgical Journal*, 1894, p. 7, said: "I think a child would stand a far better chance of getting well after an abdominal section and the disentangling of the invagination by the fingers than by the influx of water, if the irrigator had to be elevated higher than three feet to bring about a reduction;" and finally Dr. Charles K. Briddon, surgeon to the Presbyterian Hospital, in a recent communication to the writer, said: "From what I have seen of the cases brought into hospital *in extremis* and the great difficulty of reducing the parts at that time, I should judge the use of intestinal enemas as simply trifling with a very grave condition, only to be combated by the institution of radical measures at the outset."

The history of the treatment of infantile intussusception by the method of intestinal distention, by either air or water, as evidenced by the testimony which has been presented, is certainly a dark page in that of our science. It is a story of empirical, rather than scientific, endeavor, one of hope deferred, of uncertainty, of prolonged torture, none the less cruel because it was performed in all kindness, and was generally considered to be the gentlest method of dealing with the disorder, and finally of a mortality of seventy-five per cent. of disaster.

Laparotomy was performed in this group of cases 64 times for the relief of infantile intussusception. It resulted successfully in 21, or in 32.8 per cent. of the cases operated upon. The average age of these infants was about six and one-half months. The average hour from the onset till the time of operation was the forty-fourth. In 17 of the cases inflation and enemata, or both, had previously been tried without success. In 8 cases the invaginated bowel was readily reduced, and in 10 cases it was reduced with difficulty. In 3 of the histories nothing was stated regarding this point. The length of time required for the performance of the operation was in one instance stated to be eight minutes, and in another thirty-five minutes, which latter included the administration of an enema.

Laparotomy was followed by death in 43 of the cases, giving a mortality of 67.2 per cent. The average age of these patients was about five months, the youngest upon whom enterectomy was performed being only three days old. It lived six days thereafter, probably

dying of inanition, as the operator opened the first piece of bowel which presented itself in the wound. Had he sought for and reduced the invaginated bowel, it seems almost certain that the infant would have recovered. If these cases are subtracted from our list of unsuccessful abdominal sections in which either the operation was abandoned, the bowel incised and an artificial anus made or resected, and an anastomosis effected, we shall have 45 cases, of which number only 24 resulted fatally, reducing the mortality to 53.4 per cent.

If we count only the operations, successful and unsuccessful, that have been performed since the perfected technique of abdominal surgery has become generally known—say, since 1889—and throwing out as before the cases in which the operation has not been completed, the bowel incised or excised, we have a total of 18 cases, of which 14 were successful, and 4 were unsuccessful, giving a still lower percentage of mortality, or 22.2 per cent., which the writer believes is a fair estimate of the risk to-day of abdominal section performed on a young infant for the relief of this disorder, if performed within the first forty-eight hours of the onset.

It would seem that if an infant suffering from this disorder were first seen in collapse, it would be wise before attempting the operation to stimulate the infant, and if it responded, to proceed; otherwise it would be useless to do so. The operators in these cases have almost invariably employed the median incision satisfactorily. The best method for reducing the invaginated portion of bowel seems to be that wherein the tumor is encircled below its apex by the finger and thumb, while the intussuscipiens or sheath is held a few inches lower down, the apex of the tumor being pushed in an upward direction. Traction from above the tumor should not be employed. If, however, the tumor prove irreducible (although so far as the writer has knowledge there is no recorded case of intestinal resection or an artificial anus in an infant under twelve months of age which has proved successful), it is the writer's belief that the method of the late Prof. H. Widenham Maunsell, which is shown in Fig. 1, is the best that has been devised for treating this most unfortunate complication caused by delay.

A slit is made in the intussuscipiens and gentle traction made on the intussusceptum until its neck appears

outside the opening in the intussuscipiens. The base is then transfixed with two straight needles armed with horsehair, and the intussusceptum is amputated a quarter of an inch above the needles, leaving a fair stump beyond them. The sutures are now passed through the invaginated bowel, caught up in the interior of the bowel, divided and tied. This having been accomplished, the invagination is reduced, and the longitudinal slit is closed.

Disastrous as we have already proved the treatment of infantile intussusception by means of intestinal distention to be, the results obtained from 1828 to 1889,

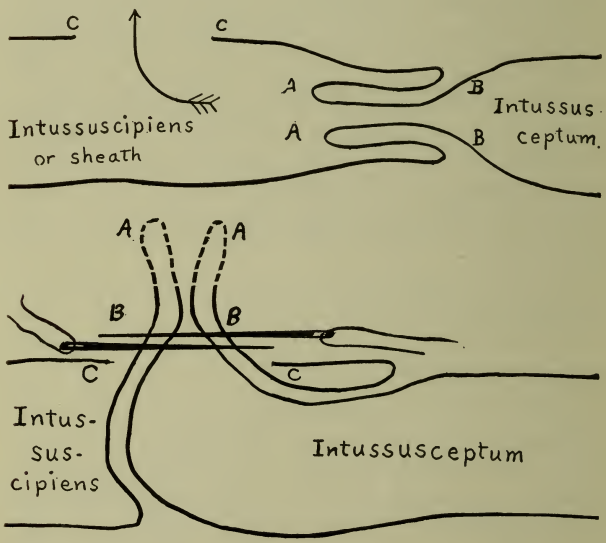

Fig. 1.—Diagram of longitudinal section of intestine, showing an acute irreducible intussusception, and the method of its treatment. C C, longitudinal opening made in the superior border of the intussuscipiens; A A, apex of intussusceptum; B B, neck of the intussusceptum.

when abdominal section was finally resorted to, seem to have been even more so, giving as it did a higher percentage of mortality, or 84 per cent., as against 75.4 per cent. But it must be borne in mind that it was always a last resort, only employed after the little patient had become collapsed by days of severe pain, inability to take and retain food, persistent, often hourly, torture by inversion, the administration of anæsthetics, enemata of air and water, massage, to which not

unfrequently was added the so-called long rectal tube. Nothing more surely could be devised to unfit an infant or adult to withstand the nervous shock which must necessarily accompany the administration of an anæsthetic, the opening of the peritoneal cavity, and the manipulation of the intestines. As one case of section proved unsuccessful, and its result was reported, it almost certainly added danger to the next case that came under the surgeon's care. In an editorial comment in a number of the *Lancet* for 1891, on a case of intussusception treated by enemata, which resulted fatally, it was said: "It is true that the invagination can always be reduced, at all events in the early stages of the disease, by the operation of laparotomy, but this operation is attended by such a large percentage of mortality when undertaken in infants that the surgeon shrinks from performing it until all other means have been tried and failed." Mr. Lawford Knaggs, in the course of his able article entitled, "Resection for Gangrenous and Irreducible Intussusception," *Lancet* for 1887, vol. i., p. 1,179, said: "This waiting policy, this surgery of hope, has so far been a dismal failure, nor should we forget that in all cases that last chance is far too poor to be relied upon for permanent success, and that in infants it practically does not exist."

Rydygier, of Cracow, in discussing intestinal invagination at the last meeting of the German Surgical Congress, held in Berlin during April, 1895, is reported to have said: "The cases are usually treated too long by internal remedies, and accordingly come too late to the surgeon. The mortality is, therefore, very high, seventy-five per cent, especially in acute cases."

Further testimony or argument would seem to be unnecessary, and we must at least begin to realize the important part played by delay in these cases, as it has in all other forms of intra-abdominal disease, in affecting the prognosis unfavorably.

If by this clinical demonstration of the disease, and of the results of its treatment from 1828 to 1895, the general profession and the laity could be impressed with the facts that acute intussusception is in reality a form of strangulated hernia; that the subacute variety is frequently an irreducible hernia; that enemata are far from being devoid of danger in their administration; that abdominal section performed under modern conditions and during the first forty-eight hours of the

disorder, has a chance of success represented by seventy-eight per cent., which would speedily rise to ninety per cent. as the cases came more frequently under operation during the first twenty-four hours, it would not be long before we should come to look upon the treatment of this disease by enemata of air and water much as we do to-day upon the pukes, purges, doses of metallic mercury, of gold and silver balls, of mixtures of birdshot and olive oil, and blood-letting which were soberly employed by good men not so many years ago for the relief of this distressing disorder, made more painful by reason of the heroic treatment considered necessary for its relief.

With the light turned fully on what modern surgery has already accomplished in this direction, it is a safe prediction that before the dawn of the twentieth century it will be generally acknowledged that our science has fully triumphed over another of her malignant foes, infantile intussusception.

55 West Thirty-sixth Street.